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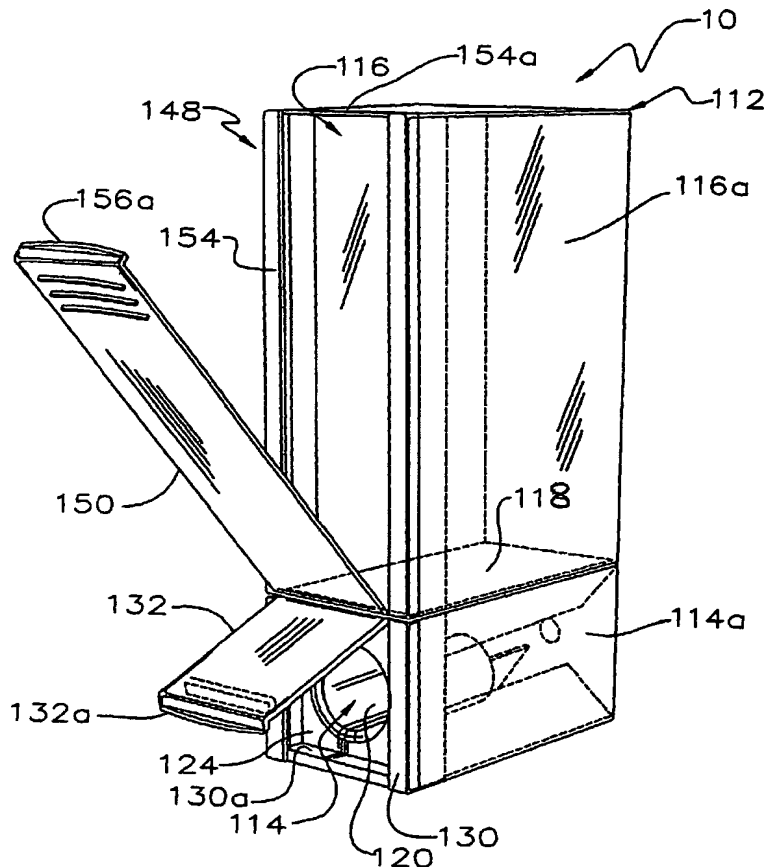
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(54) Title: **COMPARTMENTALIZED CIGARETTE SNUFFER AND RECEPTACLE**



(57) Abstract: A compartmentalized cigarette snuffer and receptacle (10) includes a container having a storage compartment sized to receive cigarettes and cigarette butts therein (16) and a cigarette snuffer compartment (14) containing mounted therein a heat sink (20) for extinguishing the lit end of a cigarette when inserted into the cigarette snuffer compartment (14). The storage and cigarette snuffer compartments are separated within the container by a dividing wall (18). Each compartment has a separate opening and a corresponding independently actuatable lid (32, 50) mounted thereon. Each lid is releasably closable for selective actuation by a user between an open position providing access to the corresponding the compartment, and a closed position sealing closed, in an air-tight fitment, the corresponding compartment.

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

## COMPARTMENTALIZED CIGARETTE SNUFFER AND RECEPTACLE

Field of the Invention

5           This invention relates to a compartmented device which enables a user to efficiently extinguish a partially smoked cigarette in a first compartment and store the remainder portion of the cigarette in a second compartment for example for later reuse and consumption.

Background of the Invention

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          Due to current societal influences, today's cigarette smokers are under pressure to comply with restrictive smoking legislation often requiring them to smoke outside of buildings, and often in situations where no or limited ash trays are available. Further, smokers often do not have sufficient time to smoke a complete cigarette, for example during a break in the work day, and thus must extinguish their lighted cigarettes prior to their full consumption. Further, many public places entirely forbid smoking and do not at all provide ashtrays where cigarettes can be conveniently extinguished and deposited. In many outdoor facilities, again there is a lack of ashtrays for the deposition of cigarette butts, leaving the smoker no choice but to deposit them on the ground.

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          Most smokers find it wasteful to be forced to throw away a partially smoked cigarette and distasteful to deposit the butt of a cigarette on the ground or out of a car window or the like. In an attempt to save a partially smoked cigarette or to avoid throwing a butt on the ground, conscientious smokers will extinguish the lighted end and return the butt or the un-smoked portion to a pocket or the cigarette package. This has been found to be unsatisfactory since a cigarette extinguished in the presence of air results in an accumulation of tobacco by-products at the burning tip, which adversely affects the taste of the cigarette once re-lighted. Cigarette butts stored within the cigarette package in the presence of un-smoked cigarettes are also unsatisfactory since the un-smoked cigarettes generally become contaminated by ash or odours emanating from

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the extinguished cigarette butt. Storing uncovered cigarette butts in a pocket or purse is obviously undesirable.

5 In the prior art the applicant is aware of United States Patent No. 3,107,674 which issued October 22, 1963 to Smith for a Smoker's Appliance. This appliance has two cylindrical bores, each of which is open at one end. An extinguishing bore has a sealed bottom end and a storage bore has a longitudinal slot facilitating finger contact with the extinguished cigarette stored therein for moving the extinguished cigarette longitudinally toward the open end of the bore.

10 The applicant is also aware of United States Patent No. 4,777,968 which issued October 18, 1988 to Beloff for a Device for Extinguishing Cigars. This device is tubular, having a closed end and being closable by a cap at the other end. The tube contains a thermally conductive snuffer, which rapidly dissipates heat from the lighted end of the cigar.

15 In the former patent reference a difficulty with preventing cigarette residue from contaminating a normal storage area such as a pocket or purse is perceived. In the latter, the inconvenient need for the use of both hands to open and close the device is evident.

20 Applicant is also aware of heat-sink devices such as have been sold by Kennedy Productions of Burnaby, British Columbia, Canada under the Trade Mark Easy Out wherein a generally cylindrical hollow metal sleeve which is open ended at both ends is provided for placement into an ashtray so as to orient the bore of the sleeve vertically. A lit cigarette is slid snugly downwardly into the bore and extinguished by extraction of the heat of the lit embers in the de-oxygenated cavity formed by the open-ended sleeve resting with one end covered by the ashtray  
25 and the other end plugged by the girth of the cigarette.

It is an object of the present invention to provide a unitary device which may be operated by a single hand, the device having discrete separate compartments for snuffing and for storing partially smoked cigarettes, where each compartment is securely and releasably closable so

as to seal each compartment by a flip type lid generally operable by the thumb of the hand within which the device is held.

### Summary of the Invention

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The present invention is a container having a cigarette snuffer compartment and cigarette butt receptacle compartment. In one embodiment of the invention, a body or housing is provided, having opposed sidewalls, opposed end walls and a bottom wall joining the opposed end walls to define a hollow generally rectangular interior cavity. An internal spacer or wall is spaced  
10 from and parallel to the end walls and orthogonal to the bottom wall so as to form first and second cigarette-receiving compartments within the cavity.

The first cigarette-receiving compartment, also identified herein as the snuffer compartment, is sized to receive the lit end of a burning cigarette through an aperture or opening.  
15 The aperture or opening is opposite the bottom wall and closable by a removable cap having a flip-up, that is pivotable access lid. A cigarette snuffer, for example a hollow tube or capsule having one end sealed closed and one open end and manufactured from metallic, ceramic or other material having high thermal conductivity, is positioned or mounted within the first cigarette-receiving compartment so as to axially align the base of the tube with the compartment aperture for  
20 cooperation therebetween. The tube frictionally engages the inside surface of, or is otherwise mounted within the first cigarette-receiving compartment. An apertured end of the bottom wall closes off the tube or sleeve opposite to the flip-up lid.

A second cigarette-receiving compartment is sized to receive both, or alternatively,  
25 cigarette butts and partially consumed cigarettes after they have been extinguished in the snuffer compartment. This second compartment is substantially larger than the first compartment. It too has an opening opposite the bottom wall, which is also closable by a removable cap having a flip-up access lid. The end cap has peripheral walls which depend therefrom and are sized to

frictionally engage the inside surface of the second cigarette-receiving compartment enabling the end cap to be removably mounted onto the container.

5 The flip up access lids facilitate opening of each compartment by use of the thumb of the hand within which the device is held. Removal of the caps facilitate cleaning of the compartments and removable parts.

10 In summary, the compartmentalized cigarette snuffer and receptacle according to the present invention includes a container having a storage compartment sized to receive cigarettes and cigarette butts therein and a cigarette snuffer compartment containing mounted therein a heat sink means for extinguishing the lit end of a cigarette when inserted into the cigarette snuffer compartment. The storage and cigarette snuffer compartments are separated within the container by a dividing wall. Each compartment has a separate opening and a corresponding independently actuable lid mounted thereon. Each lid is releasably closable for selective actuation by a user  
15 between an open position providing access to the corresponding the compartment, and a closed position sealing closed, in an air-tight fitment, the corresponding compartment.

In one embodiment the container and the dividing wall are rigid and the container is a rectangular parallelepiped. The lids may be mounted on a common side of the container, or, for  
20 example, on opposite ends of the container. Each lid may be pivotally mounted on a hinge mounted to the container. The hinges may be a single common hinge, that is common to both lids. Each hinge or the common hinge may be a flexible hinge of flexible material.

25 In one embodiment the heat sink means is a metal cylinder having a closed end and an opposite open end. The open end is aligned with the opening in the cigarette snuffer compartment. The container may include opposite end walls. The cylinder may be aligned parallel with, and adjacent, one end wall of the opposite end walls of the container. The dividing wall may be adjacent the cylinder and parallel to the one end wall.

Brief Description of the Drawings

Figure 1, is an exploded perspective view of the compartmentalized cigarette snuffer and receptacle of the present invention.

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Figure 1a, is a perspective view of the assembled cigarette snuffer and receptacle of Figure 1.

Figure 2 is a sectional view taken along line 2-2 of Figure 1.

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Figure 3 is a sectional view taken along line 3-3 of Figure 1.

Figure 4 is the view of Figure 2 showing the device positioned to conveniently receive a cigarette to be extinguished.

15

Figure 5 is, in perspective view, a further embodiment of the compartmentalized snuffer and receptacle according to the present invention.

Figure 6 is, in perspective view, the snuffer compartment cap with its lid in its open position.

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Figure 7 is a cross sectional view along line 7-7 in Figure 6.

Figure 8 is a cross sectional view along line 8-8 in Figure 6.

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Figure 9 is, in perspective view, the storage compartment cap with its lid in its open position.

Figure 10 is a cross sectional view along line 10-10 in Figure 9.

Figure 11 is a cross sectional view along line 11-11 in Figure 9.

Figure 12 is a rear elevation view of the device of Figure 5.

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Figure 13 is a cross sectional view along line 13-13 in Figure 12.

Figure 14 is, in perspective view, the cigarette snuffer heat sink according to one embodiment of the present invention.

10

#### Detailed Description of Embodiments of the Invention

With reference to the drawing figures, wherein similar characters of reference denote corresponding parts in each view, the compartmentalized cigarette snuffer and receptacle 10 has a hollow body 12 which is divided into first and second receiving compartments 14 and 16 respectively by an internal dividing wall 18. Body 12 may be transparent or translucent so that a user may at a glance determine whether a partial cigarette or cigarette butt is present in a compartment.

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20

A snuffer 20, manufactured from material of high thermal conductivity, fits snugly within first compartment 14. Snuffer 20 is generally cylindrically shaped, having a cigarette butt receiving bore 22 which terminates at end 20a of snuffer 20. An enlarged outwardly flared, generally frusto-conical entry flange 24 may surround one or both ends of receiving bore 22, for example adjacent the open end 20b of snuffer 20, opposite closed end 20a. Snuffer 20 may be frictionally mounted or otherwise secured within first cigarette-receiving compartment 14, and may be held in place for example by end cap 30 inserted into the open end of compartment 14.

25

End cap 30 has a flip-up access lid 32 having a snap closing latch 32a. Peripheral walls in the form of sleeve 34 depend therefrom. Sleeve 34 has an end wall 34a at an end opposite



to access lid 32, which may lie in contact with open end 20b of snuffer 20. An aperture 36 formed in end wall 34a is aligned with bore 22 of snuffer 20. Sleeve 34 may be mounted by frictional contact with the adjacent internal surfaces of hollow body 12 and dividing wall 18 to retain the sleeve securely in place.

5

The placement of a lighted and partially consumed cigarette 40, as illustrated in Figure 4, through aperture 36 of end wall 34a and into bore 22 of snuffer 20 will quickly extinguish the cigarette through the rapid dissipation of heat from the lit embers of the cigarette.

10

The partially consumed cigarette 40 may then be placed within second cigarette-receiving compartment 16 and retrieved later for continued smoking. Compartment 16 is preferably sized to at least accommodate partially consumed cigarettes 42 or cigarette butts, but may also be sized to accommodate one or more cigarettes which have not yet been lit, for example if such cigarettes are angularly inserted within compartment 16. A removable end cap 48 closes compartment 16 and has an integral flip-up access lid 50. A perimeter sleeve 52 depending from cap 48 frictionally contacts the adjacent internal surfaces of hollow body 12 to retain the cap securely in place.

15

Flip-up lids 32 and 50 within end caps 30 and 48 respectively, permit a user of this device to readily open either lid with the thumb of the hand within which the cigarette snuffer and butt receptacle is held. Easy removal of end caps 30 and 48 facilitates cleaning of this device.

20

With further reference to the drawing figures, again wherein similar characters of reference denote corresponding parts in each view, in an alternative embodiment, not intended to be limiting, the compartmentalized cigarette snuffer and storage receptacle according to the present invention has a hollow body 112 which is divided into a first snuffing compartment 114 and a second storage compartment 116 by an internal dividing wall 118. Again, body 112 may advantageously be transparent or translucent, for example manufactured of plastic, so that a user

25

may at a glance determine whether a partial cigarette or cigarette butt is present in the storage compartment.

5 A snuffer 120, manufactured from material of high thermal conductivity, for example metal, fits snugly within bore A in first compartment 114. Bore A is defined between the radially inward edges of a radially spaced array of vanes 121, radially spaced about the axis of symmetry of butt receiving cylinder 122. Again, snuffer 120 as better seen in Figures 9 and 10 generally cylindrically shaped, having cigarette butt receiving cylinder 122 which terminates at end 120a of snuffer 120. It is understood that the snuffer need not necessarily be cylindrical, as other  
10 shapes would work so long as the lit end may be brought into contact with a highly head conductive heat sink. Flange 124 surrounds ends 120b of snuffer 120, opposite closed end 120a. Snuffer 120 is frictionally mounted between vanes 121 or otherwise secured within bore A of first cigarette-receiving compartment 114. Flange 124 mounts into a supporting frame 130a within cap 130. Cap 130 is inserted into frictional mating engagement in the open end of compartment 114  
15 and retained therein by ribs 130b engaging the inner surfaces of sidewalls 114a of compartment 114. Frame 130a sandwiches flange 12 against the ends of vanes 121.

Cap 130 has a flip-up access lid 132 having a snap closing latch. Latch release 132a snaps closed onto frame 130a. Lid 132 pivots between its open and closed positions about  
20 hinge 134. Hinge 134 may be a flexible plastic hinge extending along one edge of frame 130a. An opposite edge of frame 130a is sandwiched between latch release 132a and latch bar 136.

Storage compartment 116 is preferably sized to at least accommodate partially consumed cigarettes 142 or cigarette butts, but may also be sized to accommodate one or more  
25 cigarettes which have not yet been lit, for example if such cigarettes are angularly inserted within compartment 116. A cap 148 is frictionally mounted into compartment 116 by the engagement of ribs 148a on rim 152 with the inner surfaces of side walls 116a. Cap 148 selectively closes off access to the compartment by flip-up access lid 150. Lid 150 pivots about hinge 151 which, again, may be of flexible plastic. Rim 152 seats snugly circumferentially within the opening into

compartment 116 so as to seat frame 154 of cap 148 down onto the rim of the compartment. Frame 154 frames lid 150 when in its closed position. A latch is provided to releasably lock lid 150 into frame 154. Latch release flange 156a and latch bar 156b snap onto, so as to snugly sandwich therebetween, frame edge 154a so as to provide releasable locking of lid 150 in its  
5 closed position.

As before, the provision of flip-up lids 132 and 150 within caps 130 and 148 respectively, permit a user to readily open either lid with the thumb of the hand for access to either the cigarette snuffer or storage compartment. Easy removal of caps 130 and 148 facilitates  
10 cleaning.

Thus, as may be seen, the present invention enables a smoker to regain control of the smoker's cigarette smoking situation by providing a dual purpose reusable container to extinguish and salvage partly smoked cigarettes to be relit later and to act as a portable ashtray for  
15 storing filter remains for later disposal. To extinguish a cigarette, the smoker holds the container in a free hand and pushes the snuffer lid open with the thumb. The burning end of the cigarette is inserted into the snuffer. The smoker then waits approximately ten seconds or so to extinguish and cool the cigarette, removes the cigarette, and closes the lid with the thumb. The smoker may then pinch off the small charred tip on the remaining cigarette. To store the extinguished cigarette the  
20 smoker rotates the container in the hand to access the storage compartment, then pushes the storage lid open with the thumb. The smoker may then place the extinguished cigarette portion inside the storage compartment and close the lid with the thumb. The cigarette is thus stored to remain fresh and odour free; ready to be relit at the smoker's convenience.

25 For use as a portable ashtray the smoker extinguishes the smoked cigarette as per above, then places the filter remains in the storage compartment. The smoker may then dispose of filter remains in a proper garbage receptacle when available. This enables a smoker courteous control when an ashtray is not available.

As will be apparent to those skilled in the art in the light of the foregoing disclosure, many alterations and modifications are possible in the practice of this invention without departing from the spirit or scope thereof. Accordingly, the scope of the invention is to be construed in accordance with the substance defined by the following claims.

## WHAT IS CLAIMED IS:

1. A compartmentalized cigarette snuffer and receptacle comprising:

5 a container having a storage compartment sized to receive cigarettes and cigarette butts therein and a cigarette snuffer compartment containing mounted therein a heat sink means for extinguishing the lit end of a cigarette when inserted into said cigarette snuffer compartment,

10 said storage and cigarette snuffer compartments separated within said container by a dividing wall, and each having an opening and a corresponding independently actuatable lid mounted thereon, each said lid releasably closable for selective actuation by a user between an open position providing access to the corresponding said compartment, and a closed position sealing closed in an air-tight fitment said corresponding compartment.

- 15 2. The device of claim 1 wherein said container and said dividing wall are rigid and wherein said container is a rectangular parallelepiped.

- 20 3. The device of claim 2 wherein said lids are mounted on a common side of said container.

4. The device of claim 1 wherein each said lid is pivotally mounted on a hinge mounted to said container.

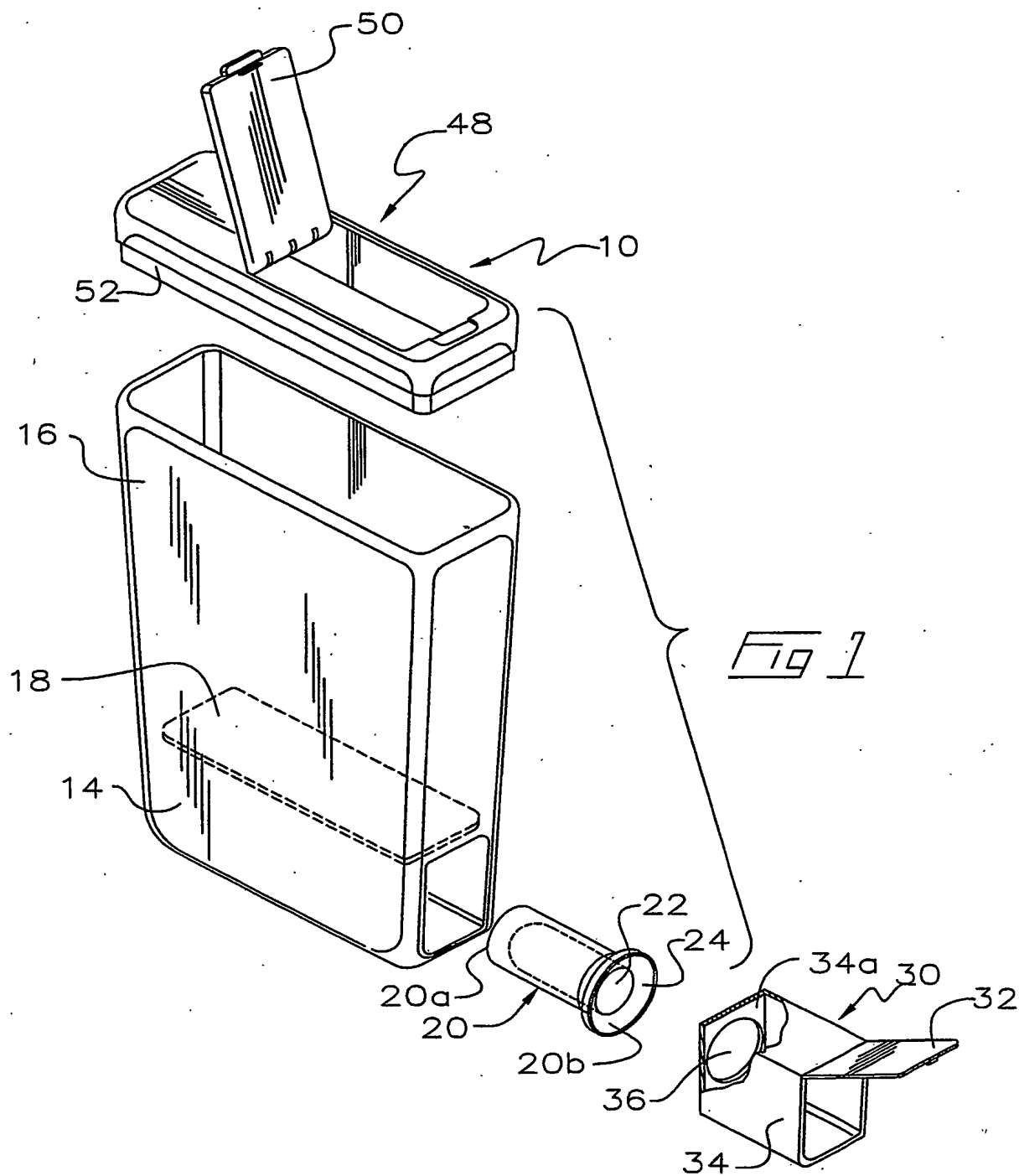
- 25 5. The device of claim 4 wherein each said hinge is a common hinge, common to both said lids.

6. The device of claim 4 wherein each said hinge is a flexible hinge of flexible material.

7. The device of claim 2 wherein said lids are mounted opposite ends of said container.
8. The device of claim 1 wherein said heat sink means is a metal cylinder having a closed end and an opposite open end, said open end aligned with said opening in said cigarette snuffer compartment.
9. The device of claim 2 wherein said heat sink means is a metal cylinder having a closed end and an opposite open end, said open end aligned with said opening in said cigarette snuffer compartment.
10. The device of claim 9 wherein said container includes opposite end walls and wherein said cylinder is aligned parallel with and adjacent one end wall of said opposite end walls of said container, and wherein said dividing wall is adjacent said cylinder and parallel to said one end wall.
11. The device of claim 10 wherein each said lid is pivotally mounted on a hinge mounted to said container.
12. The device of claim 11 wherein each said hinge is a common hinge, common to both said lids.
13. The device of claim 12 wherein each said hinge is a flexible hinge of flexible material.
14. The device of claim 1 wherein said container is manufactured of substantially transparent material.
15. The device of claim 1 wherein outer walls of said storage compartment are substantially transparent.

16. The device of claim 1 wherein said dividing wall is a single common wall common to both said compartments.
- 5 17. The device of claim 2 wherein said dividing wall is a common planar wall common to both said compartments.
18. The device of claim 5 wherein said lids are mounted on a common side of said container.
- 10 19. The device of claim 18 wherein said common hinge is located between opposite ends of said container on one side of said container, and wherein said lids extend from said common hinge to said ends of said container.

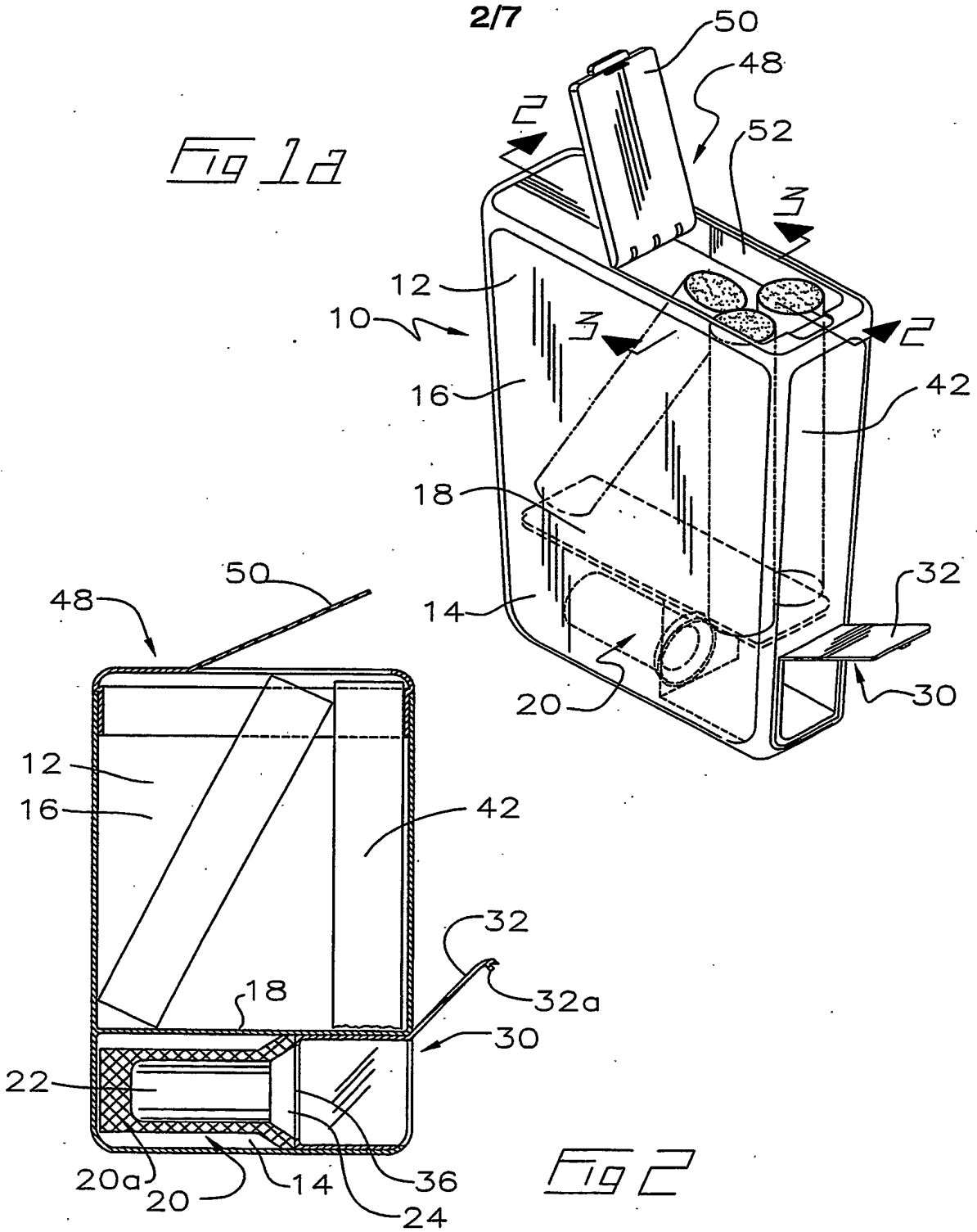
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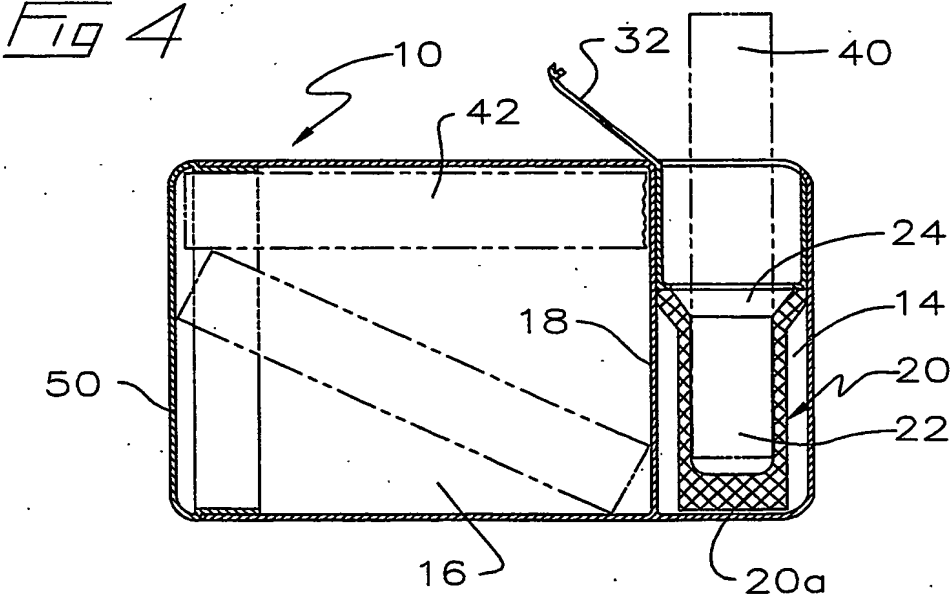
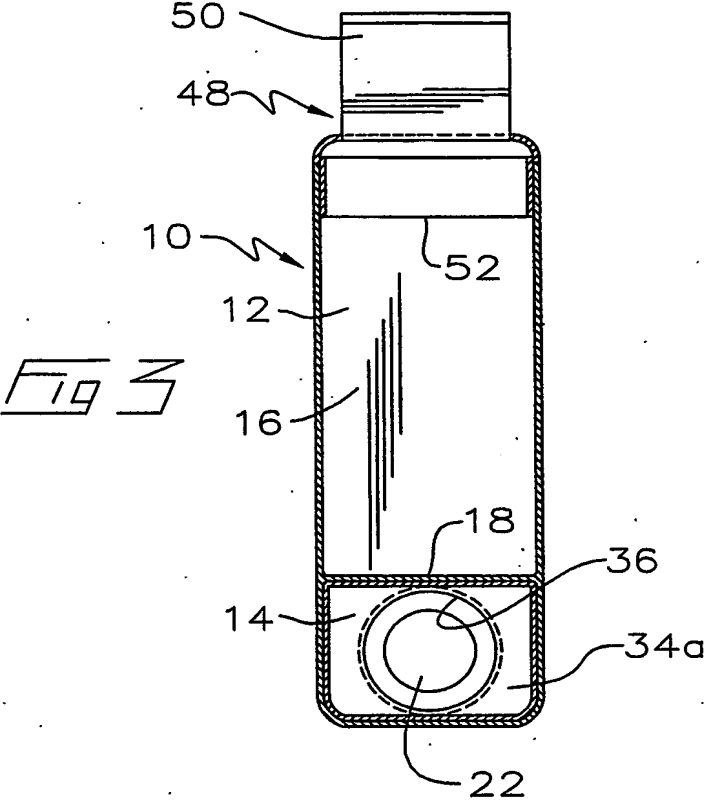


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Fig 1a



3/7



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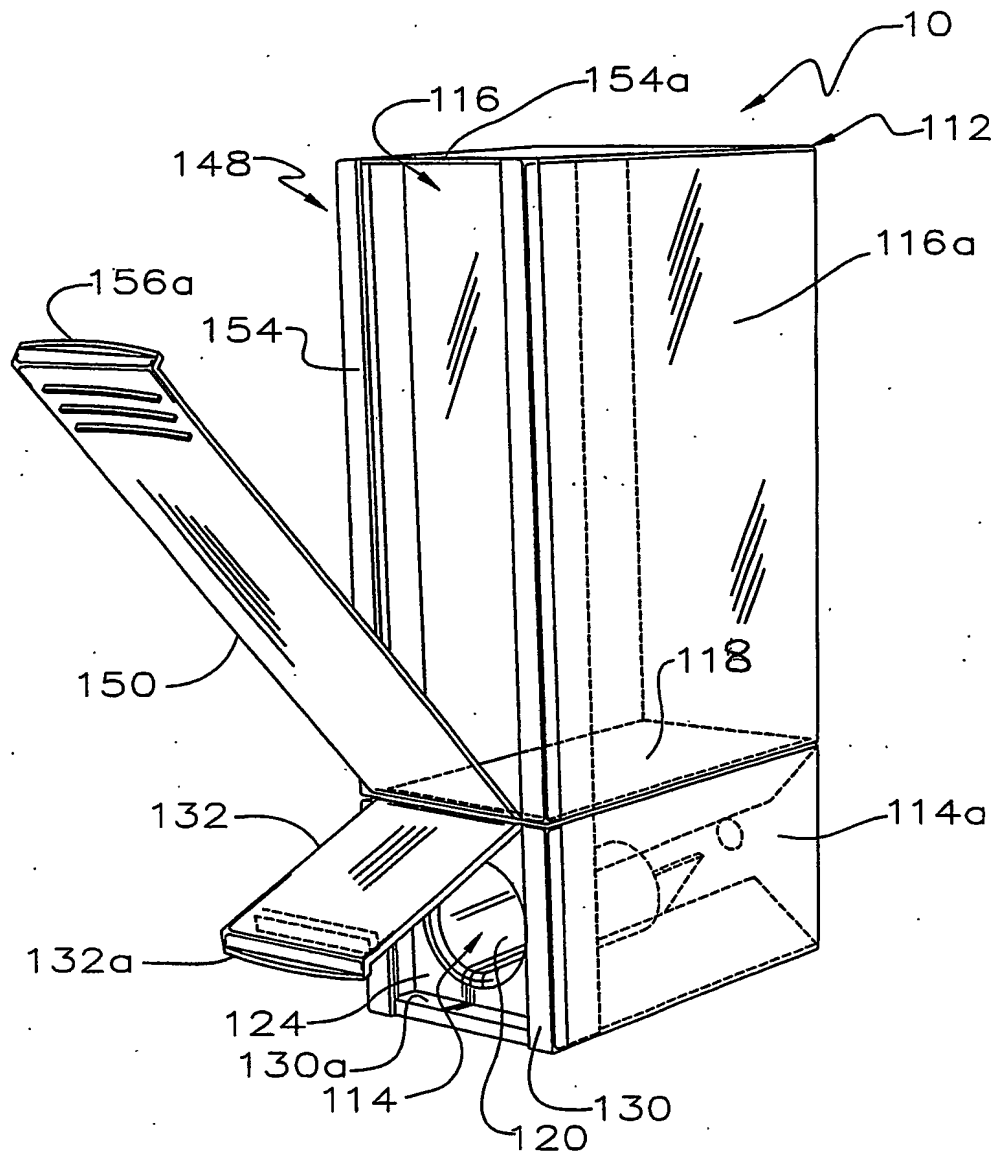


Fig 5

5/7

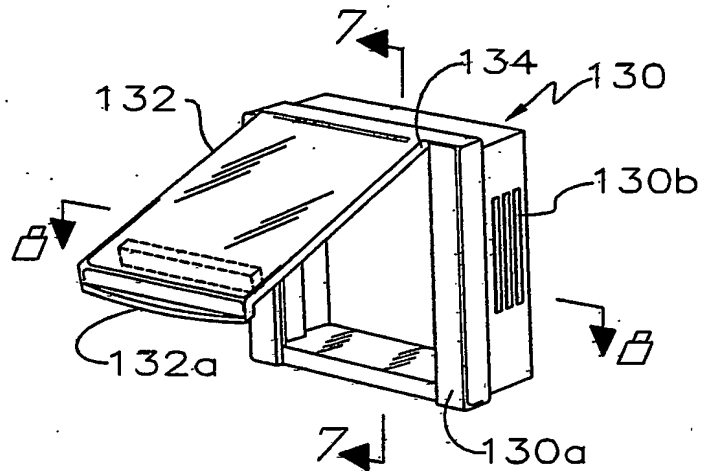


Fig 6

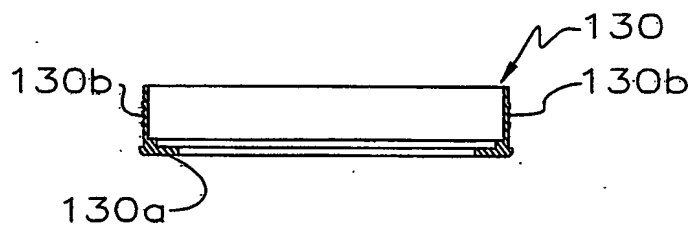
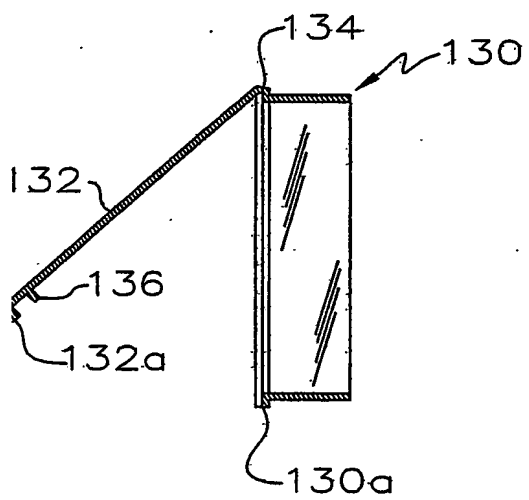


Fig 7

Fig 7

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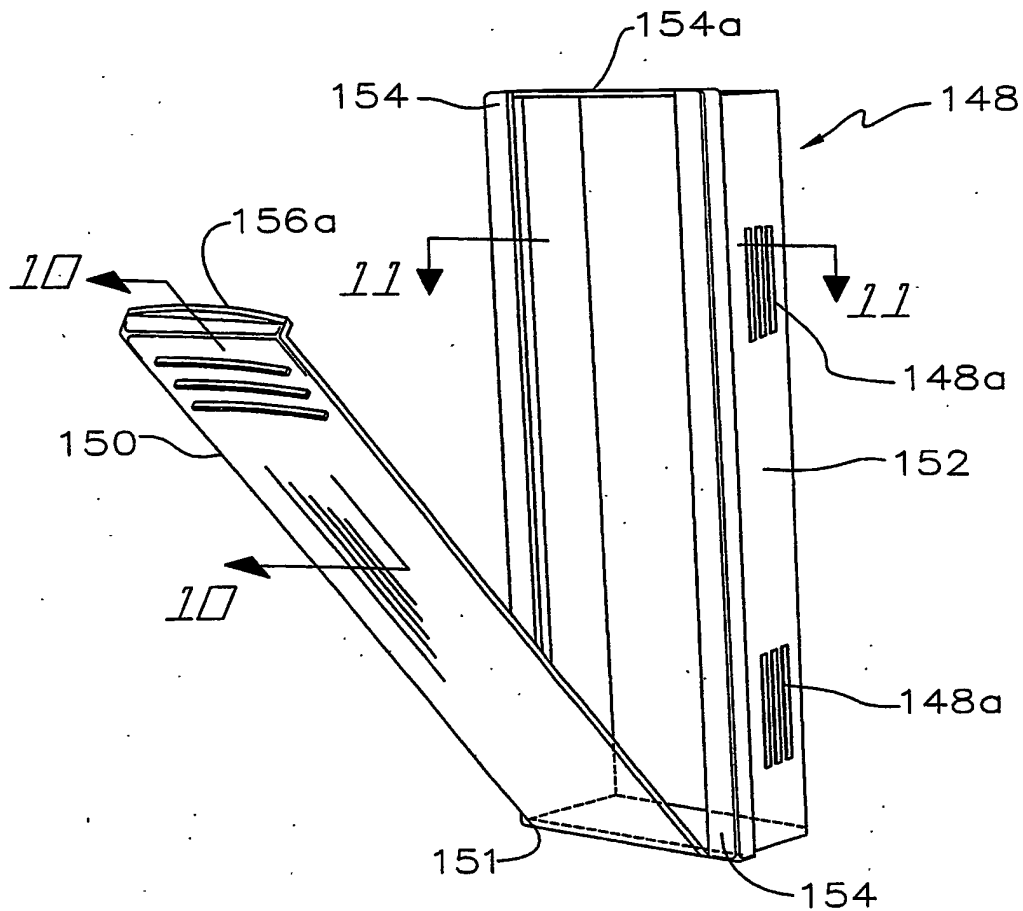


Fig 9

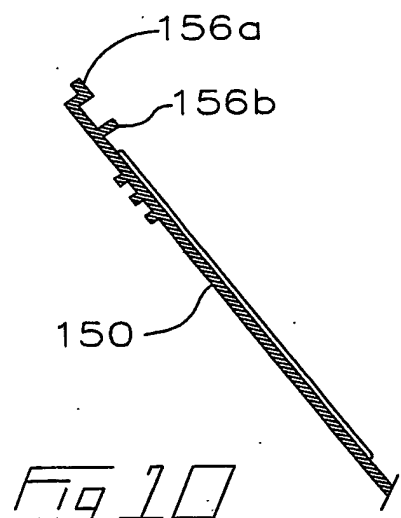


Fig 10

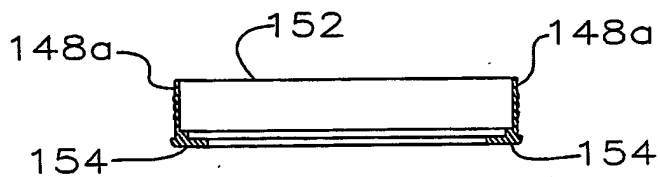


Fig 11

Fig 12

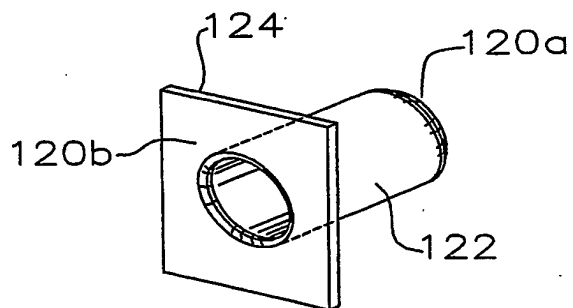
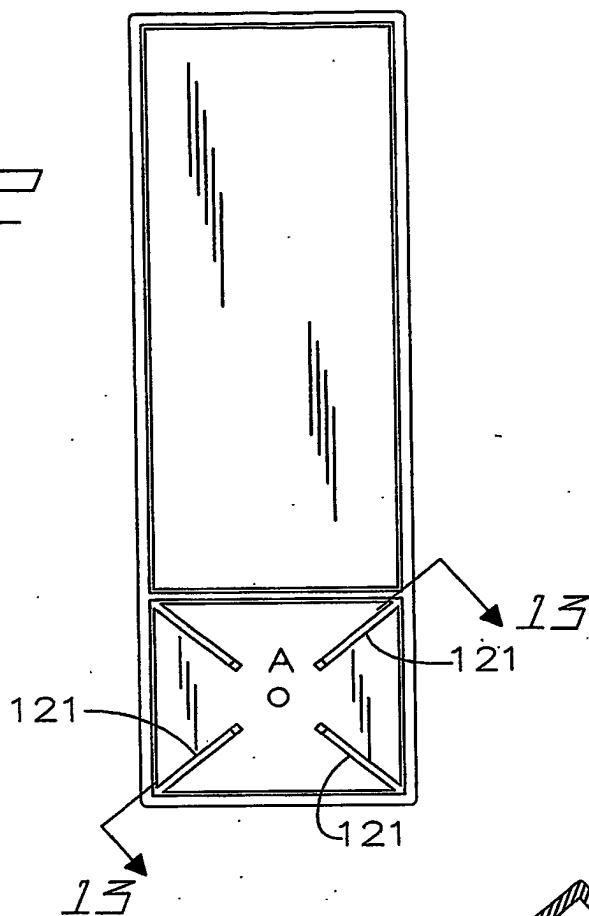


Fig 14

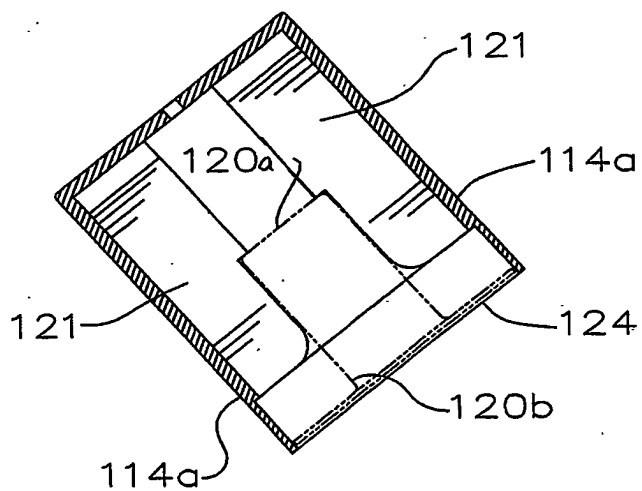


Fig 13

# INTERNATIONAL SEARCH REPORT

In National Application No  
/CA 03/00640

**A. CLASSIFICATION OF SUBJECT MATTER**  
 IPC 7 A24F13/18 A24F15/18 A24F19/00

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
 IPC 7 A24F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 321 757 B1 (MCCUTCHEON PAUL JERRY) 27 November 2001 (2001-11-27)  column 4, line 4 - line 65; figures ----	1-5, 8-12, 16-18
X	US 1 928 041 A (WINDESHEIM KARL A) 26 September 1933 (1933-09-26)  column 2, line 20 - line 24; figure 6 column 2, line 40 - line 42 ----	1-5,8, 10,11, 18,19
X	FR 879 334 A (DEPOIT RAYMOND-EUGENE) 19 February 1943 (1943-02-19) the whole document  ----- <div style="text-align: center;">-/-</div>	1,6,16, 17



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

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Date of the actual completion of the international search

2 August 2003

Date of mailing of the international search report

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# INTERNATIONAL SEARCH REPORT

Int al Application No  
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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	FR 2 676 892 A (BELIN LAURENT ;PAMARD FREDERIQUE (FR)) 4 December 1992 (1992-12-04) page 2, line 30 -page 3, line 5; figure 3 page 3, line 22 - line 29 ----	1,2,8,9, 16,17
A	EP 0 077 867 A (NEUWAHL NICOLAAS) 4 May 1983 (1983-05-04) abstract; figures ----	1,2,16, 17
A	NL 1 012 627 C (PEEREBOOM PETER ;KAPPERS BAUKE HERMAN (NL)) 17 January 2001 (2001-01-17) abstract; figures -----	1



# INTERNATIONAL SEARCH REPORT

Information on patent family members

Int. Application No

/CA 03/00640

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 6321757	B1	27-11-2001	NONE	
US 1928041	A	26-09-1933	NONE	
FR 879334	A	19-02-1943	NONE	
FR 2676892	A	04-12-1992	FR 2676892 A1	04-12-1992
EP 0077867	A	04-05-1983	EP 0077867 A1	04-05-1983
NL 1012627	C	17-01-2001	NL 1012627 C2	17-01-2001